Special State Concerns and Recommendations

Wisconsin has identified key priorities around which the Water Division, particularly the Watershed Bureau, will work in the coming years. The special state concerns described below outline the topical area, issues involved and key priority objectives for the Department and partners for the coming reporting period.

Great Lakes

The Great Lakes bound the eastern and northern borders of Wisconsin. With the islands of Door County and the Apostle Islands, there are over 1000 miles of Great Lakes shoreline. With over half of the state's popluation living in the basin, the Great Lakes are critical as source of drinking water, industrial and commercial process and cooling water, a significant transportation system and a highly desirable tourist destination for fishing, boating or the beaches. As interstate and international waters, management programs must be established at a regional scale to be effective.

In 2004, the Department elevated the status of Great Lakes issues by creating an Office of the Great Lakes. This office works closely with DNR's administration to support Wisconsin's Governor in his chairing of the Council of Great Lakes Governors. The Council is developing a regional agenda in response to a Congressional inquiry that focuses on 9 priority areas:

- ensuring the sustainable use of Great Lake waters
- protection of public health from adverse impacts of pollution
- controlling pollution from diffuse sources
- continue to reduce the introduction of bioaccumulative substances into the ecosystem
- stop the introduction and spread of non-native invasive aquatic species
- enhance fish and wildlife by protecting and restoring important habitats
- restore the environmental quality in Areas of Concern
- standardize and enhance methods for data collection, analysis and distribution
- adopt sustainable use practices to protect environmental resources and enhance the recreational and commercial values of the Great Lakes.

Using this agenda, Wisconsin will be working in partnership with other states to carry out specific actions to eliminate the need for fish and wildlife consumption advisories through remediation of contaminated sediment, atmospheric pollutant controls, nonpoint source reductions. Important habitat areas will be identified and protected or restored in those cases where habitat quality may be impaired. Plans to stop exotic species will be implemented with an emphasis on preventing new introductions from any sources. Sources of pollution which lead to beach closure will be identified and corrected. Through this agenda, the Great Lakes state Governors will seek federal support for a multi-year campaign to restore the quality of the Great Lakes ecosystem.

Because of their immense size, management actions will require extensive collaboration and cooperation among jurisdictions and among all levels of government, advocacy interests and industry. These are large- scale problems which need multi-year efforts. With 20 percent of the world's supply of freshwater at stake, increasing the prominence and national investments into the Great Lakes restoration projects are necessary and reasonable actions.

Aquatic Invasive Species

Since the early 1800s, more than 140 aquatic nonindigenous species (ANS) have arrived in the Great Lakes. Not all arrivals – or introductions – have resulted in harm. However, some threaten the diversity or abundance of native species, the ecological stability of habitats, and/or commercial,

agriculture, aquaculture and recreation activities. The pace of introductions is increasing and it will only get worse with increasing global trade unless national/international prevention and control measures can be put in place.

In 2002, WDNR completed a Comprehensive Management Plan to Prevent Further Introductions and to Control Existing Populations of Nonindigenous Aquatic Nuisance Species (ANS). This plan is a blueprint for managing aquatic invasive species and is designed to help prevent new introductions, to slow the spread of existing ANS and to control or abate the ecological and economic impact of existing problem species. water, for example, likely involve and affect the other - surface water.

This plan was prepared in partnership with the University of Wisconsin Sea Grant Institute and in 2002 was submitted to the National Aquatic Nuisance Species Task Force, when it was approved.

The invasives program recognizes the need for regional, national and international action and coordination in targeting ballast water of ocean going vessels — the primary, documented way many invasive species reach the Great Lakes. Also, the Comprehensive Plan calls for a coordinated study of the potential for introductions by the bait and aquaculture industry and development of recommendations to reduce this pathway for importation of aquatic exotics. Many aquatic activities can result in the transport of invasive species and their introduction into uninfested waters, but the bait shops, pet pet sales, and aquaculture operations are a much lesser threat than ballast water represents.

The primary way invasive species spread to new inland waters is by hitching a ride aboard the boats, trailers, bait buckets and other equipment of recreational boaters and anglers. Inspections of recreational boats at key public landings and an expanded information and education campaign and outreach efforts to slow the advance of zebra mussels and Eurasian watermilfoil are also recommended.

During 2002-04, the state has begun developing a coordinated, comprehensive program for aquatic invasives modeled after the state of Minnesota's. Key program elements include prevention, control and abatement through watercraft inspection at boat landings, enforcement efforts, and a stepped up public awareness campaign that includes television and radio messages to reach a large audience. An integrated data system to support this work is also being developed. Minnesota's program has been credited with greatly slowing the spread of invasive species – in particular, Eurasian water milfoil. Results from recent boater surveys have shown that Minnesota has been effective in getting the message out to boaters by slowing the spread of Eurasian Water Milfoil in inland waters by more than 50%.

Water Quantity Issues

Wisconsin is known for its abundant water resources. However, there is a growing concern about the availability of enough high quality water for uses ranging from public water supply to sustaining cold water habitat for fish. Wisconsin's surface water and groundwater quantity concerns, while seemingly distinct, are as closely linked as the resources. Studies throughout the state illustrate the direct connection between shallow aquifers and the state's streams, rivers, lakes and wetlands. Thus, in general, water quantity concerns with one aspect of the resource — groundwater, for example, likely involve and affect the other - surface water.

Groundwater availability in a given area is limited by geologic and hydrologic factors. Over the years the state's increasing population, rapid widespread development and increasing and varied industrial demands in some areas have increased demands for groundwater beyond the amount that can be sustained. This imbalance can result in cumulative water quantity and related water quality problems. Significant regional groundwater quantity impacts are documented in the Lower Fox Valley, and Southeastern Wisconsin and are beginning to be seen in Dane County. These three areas are experiencing substantial groundwater level declines. Localized surface expressions of quantity issues include lake level drops, stream flow declines, wetland size and level declines, and the disappearance of springs. In addition these declines have contributed to drinking water quality problems in the Lower Fox Valley and Southeastern Wisconsin.

Historically, management of Wisconsin's groundwater and surface water has been functionally distinct. The State's regulations for water use cover installation of high capacity wells, surface water

diversions, in-stream flows and water conservation. The recent evaluation of placement of a high capacity well for a drinking water bottling plant in a spring-fed region illustrated the complexity of social, ecological and institutional issues involved and underscored the state's limited powers to protect sensitive water bodies, such as springs, from the impacts of high capacity wells. In Spring 2004, the state has taken an important step towards integrated management of water resources by passing groundwater quantity legislation designed to further protect groundwater and surface waters from the impacts of high capacity wells. Specifically, the law expands the DNR's authority to regulate high capacity wells that may impact certain critical surface water resources. The law also designates two large regional groundwater management areas for which a coordinated water management strategy is needed to alleviate pressures of increasing water demands and creates a Groundwater Advisory Committee to make recommendations on management strategies in these regions.

In addition, increasing interest in and demand for water diversions involving the Great Lakes Basin also mandate a coordinated programmatic response. Most recently, Wisconsin has been participating on a binational committee to oversee implementation of Annex 2001 to the 1985 Great Lakes Charter. The Great Lakes Charter and the Great Lakes Charter Annex are voluntary agreements through which the Great Lakes states and provinces cooperatively manage the waters of the Great Lakes. In the Annex, the Governors and Premiers outline the framework for a set of binding agreements among the Great Lakes States and Provinces and establish a series of principles for a new standard for reviewing proposed withdrawals of Great Lakes water.

Riparian Development

Few natural scenes are more treasured than a golden sunrise over a mist-covered lake. Perhaps it is the sense peace this scene provides that, ironically, has resulted in the tremendous changes in the state's shoreland areas. The sense that many, if not most, of the state's lakes and increasingly its riparian shore areas were fully or nearly completely developed prompted the WDNR to initiate its Northern Initiative in the early 1990s. Surveys in 1994 and 1995 indicated that residents and visitors were very concerned about retaining northern Wisconsin's wild and scenic qualities. Follow-up surveys of land use change in the northern part of the state confirmed suspicions that undeveloped riparian areas were being lost at a rapid rate. Generally, land cover data and land use analyses show extraordinarily rapid growth throughout the entire state. Development pockets are occurring in the Milwaukee to Madison corridor, the Fox Valley/Green Bay area, the Hudson/Eau Claire/Chippewa Falls region (tributary to the Twin Cities) and a generalized growth pattern stretching across the entire northern portion of the state. Within each of these areas and beyond, land values for shorelands have escalated while the same land parcel becomes even more critical (as it becomes more rare) for its ecological functions. Several initiatives, at the federal, state and local levels, are ongoing to address the issue of land use generally - and riparian development specifically - including:

- The Northern Initiative (WDNR), a geographically-based framework for focusing interest and resources on preserving the fundamental values of wild places in the north;
- Land Legacy (WDNR), a proposed 50-year land acquisition framework for public land purchase and easement development in the state;
- Conservation Reserve and Enhancement Program (Federal), a federal match program to secure buffers through easement and acquisition;
- Smart Growth (Local), a series of state level requirements for comprehensive planning and the local level which involves identifying key natural resource features in a community. This may result in some type of local protection for key riparian resources.
- Shoreland Management Program (State/Local). In the 1960s Wisconsin established an administrative code known as "NR 115" to protect water quality, wildlife habitat and natural shoreline beauty through statewide minimum standards for land uses and development adjacent to lakes, rivers and streams in unincorporated areas. NR 115 was implemented via mandated county shoreland ordinances. NR117 is a similar provision applying to shoreland-wetlands in incorporated areas. NR118 covers shoreland management associated with the Lower

St. Croix Riverway.

• Lakes Planning, Protection and Classification Grants (State/Local) have provided funds for careful resource planning and protection at the local level, resulting in initiatives designed to meet the resource protection needs of lakes based on waterbody characteristics and development potential.

• Rivers Planning and Protection Grants (State/Local) have provided funds to protect rivers through resource planning at the local level to help prevent water quality, fisheries habitat, and natural scenic beauty from deteriorating as residential, recreational, industrial and other uses increased along rivers.

Issues

While Wisconsin's Shoreland Management Program was landmark legislation in the 1960's, it has not kept current with development trends or the impacts of the resulting development. Studies have shown that the current minimum standards may be inadequate to prevent water pollution, shoreline erosion and the loss of fish and wildlife habitat. The Department has updated Ch. NR 115, Wis. Admin. Code, to offer landowner more flexibility in developing and maintaining shoreland property, while offsetting the impacts of shoreland development and increasing environmental protection.

Many local communities have adopted local land use policies that exceed the state minimum standards recognizing the need to protect Wisconsin's resources, however, turnover is often high in local government. As a result there is a continuous need to provide education and training to local governments.

Private property rights groups are becoming more active in the State, and many local communities are turning to the Department for help in understanding the legal implication of proposed regulations, as well as implications of State and Federal Supreme Court cases. Concerns range from regulation and takings to when can a variance be issued. Education and training is needed for local Corporation Counsels, as well for the general public.

Land prices have skyrocketed surrounding Wisconsin lakes and rivers. One result is that it is more expensive to preserve the remaining undeveloped land, and the State is often at odds with developers for the same piece of land. The other problem is more and more people are turning to "marginal" pieces of property to develop, often with large areas of wetlands that are difficult to develop and often, the landowners have unrealistic expectationsof how the property can be managed.

Contaminated Sediment

Contaminated sediment is by no means a new issue to the state of Wisconsin — the state has been working in partnership with public and private entitites for many years to identify, understand and remove contaminated sediment. Today, however, the state is redoubling its efforts to remediate contaminated sediment as this issue has been identified as a priority for the Water Division. Showcasing the latest technology and partnership approaches is the Fox River Sediment Remediation. As one of the Governor's top environmental program priorities, the Fox River work is spurring momentum for a much broader effort — the development and implementation of a contaminated sediment strategy for the state.

This Department's cross-program approach to this complex environmental hazard will be lead by the Sediment Management Section within the Bureau of Watershed Management in coordination with the Department's Contaminated Sediment Standing Team. This team has inventoried all known sites through the state and maintains a log that reflects each site's status from 1) site identification 2) site assessment 3) remediation planning 4) implementation to 5) post-remedial monitoring. These data and tools provide a framework for developing a more comprehensive approach to managing, monitoring and remediating contaminated sediment statewide. In the coming year, available resources will be engaged to further develop and implement this broad strategy for realizing concrete environmental restoration.

Habitat Protection and Restoration

Habitat issues have become increasingly important in water resource management due to the connection with water quality and quantity in both surface water and groundwater. Many of the restoration goals for streams are imbedded in developing a better understanding of regional hydrology and the impacts of land cover and land use types as they relate to these flow patterns. While programs like the Conservation Reserve Program buffers and Conservation Research and Enhancement Program buffers and filter strips have been established to protect zones, the design of riparian practices and the assessment of the regional hydrological patterns must occur together.

Instream habitats, or the stream morphology, are significantly affected by the speed and volume of runoff delivery. Practices designed to reduce pollutants should be assessed to promote loss of energy in these overland flows. These designs will also promote greater opportunities for recharge and support of base flows, while working to minimize both the amount of fluctuations and duration of peak to average flow variations. These land practices to support attainment of in-stream habitat goals will also result in increases in habitat quality and amounts for wildlife needing riparian areas for survival

Thus, there is a need for an equivalent program of some kind to support continuous signup for buffers and filter strips in non-agricultural areas. Further, regional and local, where possible, hydrologic modeling should be encouraged during the design of large developments, and all practical steps should be taken to encourage infiltration and preservation not only of pre-development flow patterns, but of water quality as well.

During development of the state's "Smart Growth" network, DNR is creating shared datasets and governmental outreach to support communities in their identification of sensitive resources so that protection can take place locally through planning, ordinances, and public awareness.

Mercury

Mercury is critical pollutant of concern for Wisconsin waters. Emissions of mercury from fossil fuel-fired boilers, which are used to generate electricity, and from other major sources significantly contribute to mercury entering waterbodies and ultimately fish and wildlife. During the past few years, Wisconsin has continued to study the biogeochemistry and ecological movement of mercury, while simultaneously developing strategic initiatives to stem its influx into the environment through regulatory and nonregulatory controls.

The WDNR Air Program assembled a Mercury Analysis Team to address the problem of mercury in the environment through the development of a strategic initiative involving non-regulatory and regulatory tools. The Mercury Analysis Team is charged with developing an atmospheric mercury modeling system for Wisconsin and the Great Lakes region. This process includes conducting a comprehensive analysis of the emission, transport, transformation, and deposition of mercury to land and water surfaces in the region. The modeling system was peer reviewed and should be available soon to support development and evaluation of the effectiveness of mercury emission reduction initiatives and strategies. These initiatives and strategies include atmospheric mercury TMDLs (Total Maximum Daily Loads) for impaired water bodies, proposed state regulations for the reduction of mercury from fossil fuel-fired utility plants, and other volunteer mercury reduction programs.

Monitoring and Data Management

Effective water management demands knowledge of resource quality conditions. Without such information, management actions may or may not be effectively applied, prioritization of work may be misguided at best – arbitrary at worst, and ecological evaluation of project effectiveness is impossible. Monitoring and associated management of data, however, is both "behind the scenes" and expensive, so that garnering a constituency for support is difficult. Further, in the area of data management, the pace of change and the availability of new systems result in rapid technology turnover – which can inhibit investment in new data initiatives. While these problems have been somewhat overcome in some areas of water management in Wisconsin, in other areas they persist and result in loss of efficiencies from lack of communication, data availability and accessibility. These problems are exacerbated by severe budget cuts in this routinely under-funded area of work. Despite these problems, Wisconsin is making progress in several areas of surface water monitoring and database development and management including:

Accomplishments

- Developing and implementing standardized protocols for baseline monitoring for wadeable and nonwadeable streams, lakes and wetlands;
- Monitoring biological, habitat and physical aspects of waterbody systems to understand ecological conditions;
- Implementing a random stratified sample design for wadeable streams;
- Continuing long-term trend monitoring on large river systems;
- Identifying key stations where flow gages are needed to conduct TMDL modeling and floodplain management;
- Developing a state-of-the-art web-interactive biological and habitat database for surface water data;
- Upgrading the state's 305b assessment database (WADRS) into a web-interactive tabular and spatial system linked to the state's 1:24,000 hydrography layer;
- Upgrading and deploying the state's water inventory, the Register of Waterbodies, with a spatial/mapping interface to better identify waterbody identification numbers and to QAQC attribute data associated with the system (name, size, etc.);
- Making water-related data available in a web-mapping application (WT Webviewer) to enhance staff access to integrated environmental data for better and faster decision making.
- Expanding datasets linked to the Surface Water Inventory System (SWIS) including general permit data inSER to demonstrate integrated data queries for assessing cumulative impacts.

Work Yet to Accomplish

- Development of an inter-program monitoring strategy that encompasses baseline monitoring components and specialized monitoring for program specific data including TMDLs, sediment remediation, 303(d) list validation, permit compliance, etc.;
- Obtain sufficient funding to fully implement the state's baseline and program-specific monitoring;
- Obtain funding sufficient to maintain required data systems and to manage data for program management, (ie., Nonpoint Source Performance Standards);
- Evaluate and modify the state's use designation assessment procedures in light of major changes in NR102, the state's water quality classification code;
- Fully implement the WADRS (Assessment System), enter and QAQC all data the 2005 for Consolidated Assessment and Listing Methodology (CALM) submittal;
- Link key databases (baseline data; 303(d) waters, outstanding and exceptional resource waters, aquatic invasives, outfalls, assessment data from WADRS, and STORET data through the Surface Water Integration (SWIS) system;
- Progress in developing and implementing a long-term strategic perspective for the state's water and water-related databases.

Implementing the Nonpoint Source Performance Standards

Implementing the state's new Nonpoint Source Performance Standards is a high priority for the Water Program. On October 1, 2002 the state promulgated nonpoint source performance standards and prohibitions for agricultural and urban runoff as part of the redesign of the state's nonpoint source pollution control program. Agricultural performance standards cover sheet and rill erosion, manure storage facilities, clean water diversions and nutrient management. Agricultural prohibitions restrict overflows from manure storage facilities, unconfined manure piles, direct runoff from feedlots and stored manure and unlimited livestock access to state waters. Non-agricultural (urban) and transportation facility performance standards cover construction site erosion, post-construction storm water runoff and runoff from developed areas. Creating and implementing an intergovernmental framework to ensure full implementation of these standards is critical to realizing the intent of the legislation - achieving and protecting water quality standards.

Compliance Assistance for Permitted Facilities

Compliance assistance is as any activity designed to: 1) help a permittee comply with all permit program requirements; 2) help the permittee understand their responsibility in complying with a permit; and 3) help the permittee stay in compliance with the terms and conditions of a permit. Compliance assistance is usually not provided when a permittee is violating a permit and an enforcement action is underway.

WDNR has had a long-standing emphasis on compliance assistance as a primary function for program staff. Many of WDNR's WPDES resources are located in field offices across the state to enhance the access permittees have with agency staff and to create a "field presence" whereby permittees understand the role of the WDNR regulator in assuring state waters remain clean. As the Department moves toward the regulation of new, non-traditional sources of pollution such as stormwater, the need for compliance assistance will increase significantly. The generally high rate of compliance that permittees in Wisconsin have is, in part, a measure of the success of compliance assistance.

Compliance assistance for municipal and industrial wastewater systems includes the following activities:

- Providing technical assistance for treatment plant operators on system operations and maintenance.
- Assisting permittees in understanding and implementing all terms and conditions of the permit.
- Providing advice to permittees on appropriate actions necessary to assure compliance with permit terms and conditions.
- Reviewing reports and plans for wastewater treatment and disposal systems and providing approvals, comments and advice, as appropriate.
- Providing training to permittees and operators on new regulatory requirements.
- Providing feedback to permittees during and following inspections and other facility evaluations by identifying minor non-compliance and recommending actions to prevent more significant permit violations.

Compliance assistance for new permittees or new categories of permittees is especially important to assure that such dischargers understand not just the terms and conditions of the permit, but also the broader implications associated with holding a permit. This is especially important for permit coverage for CAFOs and stormwater sources that have traditionally not been regulated under state or federal regulations. Guiding these new permittees through the regulatory process and making available to them the resources needed to attain and maintain compliance is an important proactive step in assuring water quality protection. In many instances, this involves training sessions for groups of permittees to assure that all aspects of the permitting process are followed.

We recommend that compliance assistance be recognized as a basic and important part of the WPDES program. Enforcement actions are appropriate and necessary when compliance assistance does not address or is not adequate to assure long-term compliance with state and federal clean water laws.